

CLAIMS

- add a12*
1. Process for treating vulcanized rubber waste, particularly comprising tyres of all sizes and of all types and/or of other worn reinforced-rubber articles such as boots, inflatable boats; this process
- 5 comprises:
- cutting the materials, particularly the tyres, into fragments from 10 to 25 cm in length;
 - attacking, using a molten pure base, the tyres and other vulcanized articles made of rubber

10 and/or polymers, in which base deconsolidation takes place;

 - separating the molten base from the deconsolidated solid components;
 - neutralizing the deconsolidated fragments;

15 - separating the liquid from the deconsolidated fragments;

 - separating the metallic and synthetic deconsolidated fragments for the purpose of recycling or of reutilization.
- 20 2. Process according to Claim 1, characterized by the use of molten pure cast NaOH as the attacking liquid.
3. Process according to either of Claims 1 and 2, characterized in that the said separation comprises sedimentation of the deconsolidated fragments,
- 25 separated beforehand from the molten base, in a settling and neutralizing liquid, and, after removal of the settling and neutralizing liquid, recovery of the deconsolidated fragments.
4. Process according to any one of Claims 1 to 3,
- 30 characterized in that it includes recycling the liquid coming from the NaOH.

- a device for the separation of metal neutralized fragments and polymer.

10. Plant according to Claim 9, characterized in that the reactor (13) has closable inlet and outlet openings (17 and 22), stirring equipment (16) and in that the said separating device comprises a filter (21), if necessary unclogged by the compressed-air device (44), capable of retaining inside the reactor the particles greater than 1 mm.

11. Plant according to either of Claims 9 and 10, characterized in that the neutralizing device comprises a tank (23) provided with an inlet communicating with the outlet (22) of the reactor, and with an outlet, the inlet and outlet being closeable, stirring equipment (16) and a filter if necessary unclogged by the compressed-air device in the output line with extension (28), spraying equipment for facility the neutralizing via the line (27).

12. Plant according to one or other Claim 9 to 11,
20 characterized in that the neutralizing device comprises
a tank (24) for injection of neutralized liquid and for
recovery via the lines (25 and 28).

13. Plant according to one or the other Claim 9 to 12,
characterized in that the neutralizing device comprises
25 another tank, source of financial returns by the use of
acid waste (26), connected to a mixing unit (27), on
the line (25).

14. Plant according to one of the other Claim 9 to 13,
characterized in that the devices for cleaning the
precipitates and small particles, during treatment, are
characterized by the equipment (38, 39, 40, 41, 42,
43).

15. Plant according to one or the other Claim 9 to 14,
characterized in that a device (31) for transporting

the deconsolidated materials comprises magnetic separation of the metallic materials (32), possibly combined with an eddy-current system for the non-ferrous materials.

- 5 16. Process and plant according to one or the other Claim of 1 to 15, allowing recycling of the synthetic materials coming from worn tyres, with a pulverulent appearance, having polymeric characteristics propitious to recycling, into the starting material, the tyres.
- 10 Other advantageous and non-limiting uses ought to appear.